

The month of November showed great contrast in the prevailing temperature conditions in different parts of the country, as is to be expected during the colder portion of the year. Part of the upper Mississippi Valley averaged about 5° warmer than normal, while some districts in the middle and northern Plateau averaged 6° colder than normal. Almost all of the Rocky Mountain region and the country to the westward, and practically all parts of the Gulf and South Atlantic States averaged cooler than normal. Most middle and northern areas east of the Rockies showed positive departures, which were considerable in a strip from North Dakota to New York. Also much of the Pacific coast area and a large part of interior California averaged warmer than normal.

The highest temperatures were usually recorded very early in the month in the far Southwest, but on various dates in the far Northwest, and on or about the 10th in some north-central districts. In nearly all States from the Plains eastward to the Atlantic coast they occurred during the period from the 14th to the 22d, and the highest readings on the 18th or 19th in much of the Mississippi and lower Ohio Valleys and the upper Lake region were among the highest temperatures ever recorded in those districts during November.

The lowest temperatures in the eastern half of the country were almost invariably noted during the final four days, and in many areas they were nearly or quite the lowest November marks of record. The western half showed less uniformity in time of occurrence, but in a considerable number of States the lowest readings occurred in the period from the 18th to the 22d, or just when unusual warmth for November prevailed in most of the eastern half.

PRECIPITATION

Not much precipitation occurred during the first decade, save in scattered areas of limited extent. About the middle of the month heavy rain fell in most of the Southeastern States, and considerable near the coast from New Jersey to southwestern Maine, while much of the far West had important precipitation. The more noteworthy precipitation afterward, till the end of November, occurred in the middle and northern Plains, the Mississippi Valley, near the east Gulf coast, and in portions of the Lake region and the far Southwest.

As a whole, the November precipitation was very unevenly distributed over the country, yet the majority of the States received more than normal quantities. In particular, nearly all of the Southeast had a marked excess, notably Alabama and the western parts of Florida and Georgia. Very different was the situation in dis-

tricts to northward. In northern New England, interior New York, Pennsylvania, and thence southward to northern Virginia, southwestward to the central valleys, and northwestward to central Wisconsin, there was a marked shortage. This month is found to be the ninth to twelfth month in succession drier than normal in Maryland, northern and eastern Virginia, West Virginia, Kentucky, and Ohio, and at least the fifth for most parts of the Lake region.

Northwestern Texas and the adjacent portion of Oklahoma mainly had less precipitation than normal, also much of the northern Rocky Mountain region, northern Idaho, Washington, Oregon, and northwestern California.

In addition to the Southeast, already mentioned, there was more precipitation than normal in much of the upper Mississippi Valley, especially that portion west of the river, in practically all the middle and northern plains, in the Rio Grande Valley and most of the middle and southern plateau, and in much of central and southern California.

SNOWFALL

Considerable snow fell in many north-central and northwestern districts, particularly central and southern Idaho, northern Nevada, and most of Utah, Colorado, and northern New Mexico. Most of this occurred about the middle of the month, falling within a few days, with a decided interruption of traffic and some loss of livestock.

Large portions of Montana and the Dakotas likewise had much snowfall. In the Lake region, most of upper Michigan and several western counties of the lower peninsula had much snowfall, and there was considerable during the final week of November in northeastern Ohio and parts of the central Appalachian region, while enough to measure was noted as far south as the elevated portion of northern Georgia. Moderate amounts of snow fell in most of the Northeast.

SUNSHINE AND RELATIVE HUMIDITY

Much cloudy weather prevailed in the East, the Gulf States, the Lake region, the far Northwest and the North Pacific States. Elsewhere rather a large amount of sunshine prevailed, especially in the great central valleys, the central and southern Rocky Mountain region, and westward to the Pacific, a number of locations receiving from 15 to 20 per cent or more above the normal. The relative humidity was above the normal in much of the East, the northern Rocky Mountain and plateau regions, while throughout the Great Plains, the central and southern Pacific regions it was, as a rule, below the normal. However, the departures from the normal were nowhere large.

SEVERE LOCAL STORMS, NOVEMBER, 1930

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Norfolk, Va.....	4					High tides and wind.	Low areas flooded; beaches badly washed; traffic interrupted; considerable minor damage by wind.	Official, U. S. Weather Bureau.
Florida (east coast).....	7-11			6		High seas and wind.	Schooner sunk; tug beached; steamed disabled; another vessel foundered.	Do.
Foreman, Ark. (4 miles southeast).	15	12:30 p. m.	67		\$600	Tornado.....	Details of damage not reported; path 5 miles....	Do.
Addicks, Tex. (near).....	15	12:45 p. m.	16	1	250	do.....	2 farm houses damaged; 3 persons injured; path 9 miles long.	Do.
Winnsboro, La. (near).....	15	4:30 p. m.	400	1	21,000	do.....	Dwellings and barns destroyed; some timber blown down; several persons injured; path 4 miles.	Do.
Hemphill to Ball, La.....	15	5:15-5:30 p. m.	150-200	5		do.....	Farm buildings wrecked; path 28 miles long....	Do.
Iola, Kans. (4 miles west)...	15	5:30 p. m.				do.....	Small buildings and telephone poles blown down.	Do.

Severe local storms, November, 1930—Continued

[The table herewith contains such data as have been received concerning severe local storms that occurred during the month. A more complete statement will appear in the Annual Report of the Chief of Bureau]

Place	Date	Time	Width of path, yards	Loss of life	Value of property destroyed	Character of storm	Remarks	Authority
Hicksbaugh to Reganville, Tex.	15				50,000	Tornado	Houses unroofed or moved from foundations; service station demolished; 10 persons injured.	Official, U. S. Weather Bureau.
Darlington to northwest Lincoln County, Miss.	15-16	10 p. m.-1 a. m.	880	1	50,000	do	Character of damage not reported; 15 persons injured.	Do.
Fern Springs to Noxubee County, Miss.	15-16		200		15,000	do	Character of damage not reported; 11 persons injured.	Do.
Paw Paw, Mich.	16					Winds	Large barn wrecked; several farm buildings damaged.	Do.
Rockport, Ind. (7 miles west).	16				5,000	Tornadoic wind	Trees uprooted; farm buildings and overhead wires damaged.	Do.
Minnesota (northwestern)	16					Ice	Overhead wires considerably damaged.	Do.
Wisconsin (southeastern)	16				2,000	Wind	Considerable minor damage to boats and other property.	Do.
North Dakota, South Dakota, and northwestern Minnesota.	16					Sleet	Wire lines snapped; highway and rail traffic interrupted, considerable damage in Fargo and Moorhead.	Do.
New Mexico (southwestern).	17-19					Snow and wind	No details.	Do.
New Mexico (northeastern).	18-19			2		do	Some loss of sheep, cattle, and poultry.	Do.
Colorado (east of Continental Divide).	18-20			9		Blizzard	Much livestock lost; extensive property damage; highways impassable for several days.	Do.
Bethany, Okla., and vicinity.	19	9.30-9.58 a. m.	25-150	23	250,000	Tornado	About one-fourth of town of Bethany demolished; many houses, barns, and outbuildings completely wrecked; 77 persons seriously injured; path 7 miles long.	Do.
Carrier, Okla.	19	10 a. m.	250		20,000	do	Minor property damage; 4 persons injured.	Do.
Victoria, Kans. (near)	19	10.15 a. m.			20,000	do	Schoolhouse demolished; farm buildings damaged; 15 persons injured.	Do.
Neal, Kans., and vicinity	19	2 p. m.	200		15,000	do	7 buildings blown down; several residences damaged; 2 persons injured; path 7.5 miles long.	Do.
Leanna, Kans.	19	2.30 p. m.	100		12,500	do	Several residences, a church, and farm buildings damaged; path 3.5 miles long.	Do.
Valley Falls, Kans.	19	4 p. m.			500	Tornadoic wind	Radio tower blown down; farm buildings damaged.	Do.
Ola, Ark.	19	8.40 p. m.	300	1	230,800	Tornado	Character of damage not reported; 12 injured.	Do.
Cleveland, Ark.	19	10 p. m.	60		6,000	do	Character of damage not reported.	Do.
Courtland, Kans.	19	P. m.			2,000	Wind	Barns unroofed; small buildings lifted from foundations.	Do.
Marlow, Okla. (north of)	19		100		500	Tornado	Minor property damage; path 1 mile long.	Do.
Minnesota (northwestern)	19					Ice	Overhead wires damaged.	Do.
Nebraska (northern and western).	19-20					Sleet	Considerable damage to telephone and telegraph lines; wire communication suspended for several days.	Do.
North Dakota (southwestern).	19-20					Wind, snow, and sleet.	Chief damage to telephone and telegraph poles and wires; highways blocked.	Do.
Charles Mix County north to Faulk County to east border of the State, S. Dak.	19-20				400,000	Ice	Heavy damage to wires.	Do.
Manilla, Iowa	20	3.30 a. m.				Tornado	Character of damage not reported.	Do.
Los Angeles, Calif.	22					Wind	Considerable damage to trees and roofs.	Do.
Maryville, Mo.	25					do	Some damage to telephone and telegraph poles.	Do.
Nebraska (southeastern)	25					do	Many poles broken off; buildings damaged at scattered points.	Do.
Illinois (northern and central).	29	A. m.				Ice	Highway traffic difficult and dangerous, much delay; several persons injured.	Do.

RIVERS AND FLOODS

NOTE.—Due to the absence of complete reports at this time, the November description of rivers and floods will be included in the December issue of the REVIEW.—*Editor.*

WEATHER OF THE ATLANTIC AND PACIFIC OCEANS

NORTH ATLANTIC OCEAN

By F. A. YOUNG

Judging from reports received, the number of days with gales over the northern part of the ocean was not far from the normal, although north of the thirty-fifth parallel these gales were unusually well distributed. As will be shown later, a number of rather unusual disturbances also occurred in southern waters.

According to press reports, winds of hurricane force swept the Panama plantation in the Laceiba zone on the 8th, destroying 58,000 banana trees besides demolishing a number of buildings. This storm must have been extremely local in character, as no reports have as yet been received from vessels involved. On the 7th the

American five-masted schooner *Dunham Wheeler* ran into a heavy gale off Cape Canaveral, on the east coast of Florida, and on the following day the crew were obliged to abandon ship, but were rescued by the American steamship *Aztec*. This gale was a "norther," as on the 8th the barometer reading at Norfolk was 30.70 inches and at Kingston, 29.92 inches, with northeasterly gales along the Florida coast.

The number of days on which fog was reported in different localities is as follows: Over the Grand Banks, from 5 to 7 days; along the American coast between the thirty-fifth and forty-fifth parallels, from 5 to 10 days; over the steamer lanes east of the thirty-fifth meridian, from 3 to 7 days; in the Gulf of Mexico, on 3 days.